UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/803,399 | 03/18/2004 | Stephan K. Barsun | 200313138-1 | 5524 |

22879 7590 11/19/2007

HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

| EXAMINER | |
|---|---|
| PAPE, ZACHARY | |
| **ART UNIT** | **PAPER NUMBER** |
| 2835 | |

| MAIL DATE | DELIVERY MODE |
|---|---|
| 11/19/2007 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

UNITED STATES PATENT AND TRADEMARK OFFICE

Commissioner for Patents
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450
www.uspto.gov



**BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Application Number: 10/803,399
Filing Date: March 18, 2004
Appellant(s): BARSUN ET AL.

Todd A. Rathe (38,276)
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 9/25/2007 appealing from the Office action mailed 4/27/2007.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is incorrect. A correct statement of the status of the claims is as follows:

Claims 52 and 56 (Not 52-56) are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

| | | |
|---|---|---|
| 6,356,448 | DiBene, II et al. | 3-2002 |
| 5,396,403 | Patel | 3-1995 |

Applicant's Admitted Prior Art

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 102***

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 39, 40 are rejected under 35 U.S.C. 102(b) as being anticipated by Patel (US 5,396,403).

With respect to claim 39, Patel teaches a heat dissipating arrangement comprising: a first heat emitting device (63); a second heat emitting device (67); and a first heat sink (75) having fins thermally coupled to the first device (Column 6, Lines 5-18), wherein the fins of the first heat sink overlap and extend opposite to opposite sides of the second device (See Fig 4).

With respect to claim 40, Patel further teaches a second heat sink (83) thermally coupled to the second device, (67, Column 6, Lines 5-18) wherein the first heat sink extends opposite to opposite sides of the second heat sink (See Fig 4).

**2. Claims 41-42 are rejected under 35 U.S.C. 102(b) as being anticipated by DiBene, II et al. (US 6,356,448 – hereafter referred to as DiBene).**

With respect to claim 41, DiBene further teaches a first heat sink for use with a first heat emitting device (118), a second heat emitting device, and a second heat sink thermally coupled to the second heat emitting device the first heat sink comprising: at least one heat dissipating structure (142) having fins (144) configured to be thermally coupled to the first heat emitting device while extending at least partially around and opposite to opposite sides of the second heat sink having fins (As illustrated in Fig 1, wherein the fins are comprised of the material between apertures 168).

With respect to claim 42, DiBene further teaches a first heat emitting device (118), a second heat emitting device, and a second heat sink thermally coupled to the second heat emitting device and having a plurality of fins (158, 168), the first heat sink comprising: at least one heat dissipating structure (142) configured to be thermally coupled to the first heat emitting device while extending at least partially around and opposite to opposite sides of the plurality of fins of the second heat sink (As illustrated in Fig 3).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 34-37, 39-40 (alternatively), 51, and 53-54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicants Admitted Prior Art (Hereinafter AAPA) in view of DiBene, II et al.

With respect to claims 34, AAPA teaches (on Page 1 of the present specification, specifically paragraphs 0002 and 0003) a processor module comprising: a processor having a first heat transfer surface; a power pod electrically connected to the processor to supply power to the processor, the power pod having a second heat transfer surface, a first heat sink overlapping the power pod and thermally coupled to the second heat transfer surface; and a second heat sink thermally coupled to the first heat transfer surface. AAPA is silent as to the second heat sink extending at least partially across the first heat sink. DiBene teaches the conventionality of having a heat sink (142) extend at least partially across another heat sink (Comprising 106, 126, and 128). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of DiBene et al. with that of AAPA to provide improved packaging of electronic circuits while also providing efficient means to purge any excess associated heat from electronic assemblies (See Column 1, Lines 15-

18, I.E. use the heat sink configuration taught to increase heat dissipation and preserve packaging and power distribution qualities).

With respect to claim 35, DiBene et al. further teaches that the second heat sink (142) extends completely across the first heat sink (106, 126, 128, See Fig 2).

With respect to claim 36, DiBene et al. further teaches that the second heat sink extends on opposite sides of the first heat sink (See Fig 2).

With respect to claim 37, AAPA further teaches (See Page 1, paragraphs 0001 – 0003 a multi-device heat sink module for being connected to a circuit board, the module comprising: a power supply, a processor, a first means for dissipating heat emitted by the power supply while not substantially receiving heat from the processor, and a second means for dissipating heat emitted by the processor ("To cool or dissipated heat from processors and power pods, many computer systems include heat sinks positioned adjacent the processor and the power pod"). AAPA is silent as to the second means extending at least partially across and over the first means. DiBene teaches the conventionality of having a second heat sink (142) extend at least partially across a first heat sink (Comprising 106, 126, and 128). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of DiBene et al. with that of AAPA to provide improved packaging of electronic circuits while also providing efficient means to purge any excess associated heat from electronic assemblies (See Column 1, Lines 15-18, I.E. use the heat sink configuration taught to increase heat dissipation and preserve packaging and power distribution qualities).

With respect to claim 39, AAPA further teaches (See paragraphs 0001, 0002, and 0003) a heat dissipating arrangement comprising: a first heat emitting device; a second heat emitting device; and a first heat sink thermally coupled to the first device. AAPA is silent as to the fins of the first device overlapping and extending opposite to opposite sides of the second device. DiBene teaches the conventionality of having a first heat sink (142) overlapping and extending opposite to opposite sides of a second heat sink (Comprising 106, 126, and 128). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the teachings of DiBene et al. with that of AAPA to provide improved packaging of electronic circuits while also providing efficient means to purge any excess associated heat from electronic assemblies (See Column 1, Lines 15-18, I.E. use the heat sink configuration taught to increase heat dissipation and preserve packaging and power distribution qualities).

With respect to claim 40, AAPA further teaches a second heat sink thermally coupled to the second device. DiBene et al. further teaches that the first heat sink extends opposite to opposite sides of the second heat sink (See Fig 1).

With respect to claims 51, 53 DiBene et al. further teaches a first heat sink (Comprising 106, 126, 128) sandwiched between a processor (108) and a second heat sink (142).

With respect to claim 54, DiBene et al. further teaches that the second heat sink has fins (Material between 168) and wherein the at least one heat dissipating structure

(142) having fins is configured to extend at least partially around an opposite to opposite sides of the fins of the second heat sink (See Fig 1).

**(10) Response to Argument**

**I. Legal Standards**

**II. The Examiner's Rejection of Claims 39-40 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,396,403 (Patel) Should Be Reversed Because Patel Does Not Disclose Every Limitation of Each of the Claims.**

**A. Claim 39**

4. With respect to the Appellants' remarks to claim 39 that, "Patel fails to disclose an arrangement having first and second heat emitting devices, wherein a first heat sink having fins thermally coupled to the first device overlap and extend opposite to opposite sides of the second device", the Examiner respectfully disagrees. For clarity, the Examiner is introducing Present Action Fig 1 below which clearly discloses how Patel teaches or suggests a first heat sink (75) having fins (Col 5, Lines 10-12) which overlap and extend opposite to opposite sides of a second device (67)

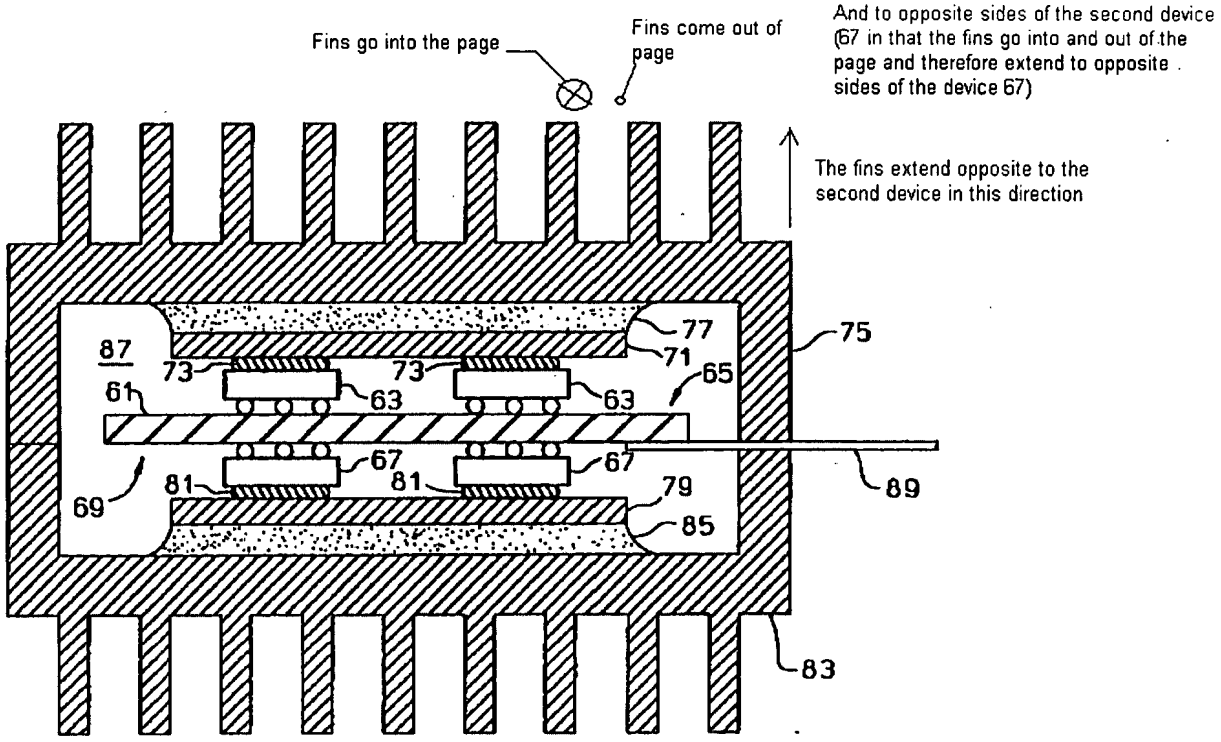


Fig 1

With respect to the Appellants' remarks to claim 39, "In other words, the heat emitting device is sandwiched between fins of a single heat emitting device" the Examiner asserts that the phrase, "opposite to opposite sides" used in claim 39 is far more broad (and nearly indefinite) then the recitation that the heat emitting device is sandwiched between the fins of the other device. Should the Appellant's desire to have such a limitation claimed, it should have been placed into the claims rather than the broad, "opposite to opposite sides" language.

**B. Claim 40**

5. With respect to the Appellants' remarks to claim 40 that, "One of ordinary skill in the art would never consider the fins of heat sink 75 to extend opposite to opposite sides of any of heat sink 83, or vice versa", the Examiner respectfully disagrees. The Examiner notes the response to the Appellant's remarks to claim 39 above (Paragraph number 4) and further notes that the fins of the first heat sink (75) will extend opposite to opposite sides of the second heat sink (83) for the same reasons.

**III. The Examiner's Rejection of Claims 41-42 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,356,448 (DiBene) Should Be Reversed Because DiBene Does Not Disclose Every Limitation of Each of the Claims.**

**A. Claim 41**

6. With respect to the Appellants' remarks to claim 41 that, "DiBene fails to disclose or suggest a heat sink having fins configured to be thermally coupled to a first heat emitting device, wherein the fins extend at least partially around and opposite to opposite sides of a second heat sink thermally coupled to a second heat emitting device", the Examiner respectfully disagrees. Fig 1 of DiBene clearly discloses a first device (118) with a first heat sink (142) having fins (144), and a second device (108) with a second heat sink (106, 126, 128, and 158) wherein the fins (144) of the first heat sink (142) extend partially around (In that the extend over the top of the second heat

sink) and opposite (In that the fins (144) extend vertically away from the second heat sink (106, 126, 128, and 158) in an opposite direction) to opposite sides (In that the fins (144) extend from the left to the right of the second heat sink when looking at Fig 1) of the second heat sink having fins.

With respect to the Appellants' remarks to claim 41, "In other words, the second heat sink is sandwiched between fins of the first heat sink", the Examiner asserts that the phrase, "opposite to opposite sides" used in claim 41 is far more broad (and nearly indefinite) then the recitation that the second heat sink is sandwiched between fins of the first heat sink. Should the Appellant's desire to have such a limitation claimed, it should have been placed into the claims rather than the broad, "opposite to opposite sides" language.

**B. Claim 42**

7. With respect to the Appellants' remarks to claim 42, the Examiner directs the Appellant's to paragraph 6 above (The Examiner notes claim 42 recites that the fins (144) extend at least partially around and opposite to opposite sides of the second heat sink fins (158) rather than the second heat sink (106, 126, 128, 158) and therefore, for the reasons in paragraph 6 above, the claim is fully anticipated by DiBene).

**IV. The Examiner's Rejection of Claim 34-37, 39-40, 51 and 53-54 under 35 U.S.C. 103(a) as being unpatentable over Applicants admitted prior art (AAPA) in view of U.S. Patent No. 6,356,448 (DiBene) Should be Reversed Because It Would Not Be Obvious to Modify Tanaka so As to Include Every Limitation of Each of the Claims.**

**A. Claim 34**

8. With respect to the Appellants' remarks to claim 34 that, "Nowhere does DiBene disclose or suggest that a heat that is connected to a processor should extend over the heat sink that extends over the power pod. In other words, nowhere does DiBene disclose that the material between plated through holes 168 (characterized by the Examiner as a heat sink) extends over heat sink 142 (the heat sink that extends over power pod 118)", the Examiner respectfully notes that it was never the Examiner's position that DiBene teaches the heat sink/power pod, heat sink/processor relationship as alleged, rather the Examiner simply used the DiBene reference to teach a second heat sink extending over a first heat sink. The relationship between the heat sink/power pod, heat sink/processor is addressed by AAPA. The Examiner asserts that the Appellant's are engaging in piecemeal analysis of the references.

The Examiner asserts that the present rejection to claim 34 is utilizing the AAPA to teach the conventionality of having a processor and a power pod both with adjacent heat sink (I.E. the heat sinks are placed atop each). Further the Examiner uses DiBene to teach a first heat sink (142) which extends over a second heat sink (Comprising 106,

126, 128, 158). Nowhere in the rejection does the Examiner even remotely allude to DiBene teaching the heat sink/power pod, heat sink/processor relationship as alleged.

**B. Claims 35 and 36**

9. With respect to the Appellants' remarks to claims 35 and 36 that, "the Examiner's characterization of the heat sink 142 of DiBene as the "second heat sink" of claim 35 and 36 is improper", the Examiner directs the Appellant's to the response in paragraph number 8 above.

10. With respect to the Appellants' remarks to claims 35 and 36 that, "Any hypothetical piecing together of the teachings of DiBene and AAPA in order to arrive at the processor module recited in claim 35 would appear to be based upon impermissible hindsight reasoning using Appellant's own disclosure as a blueprint as neither reference provides any suggestion for the claimed arrangement", the Examiner respectfully disagrees. The Examiner notes that claim 35 does not recite a processor module as alleged (though the Examiner notes that independent claim 34 does recite "a processor"). Additionally the Examiner notes that the rejection to claim 34 above does recite motivation in the DiBene reference, mainly that using the heat sink configuration taught by DiBene will increase heat dissipation and preserve packaging and power distribution qualities. Therefore the Examiner could not possibly have used improper hindsight as alleged.

### C. Claim 37

11. With respect to the Appellants' remarks to claim 37, the Examiner directs the Appellants to the response in paragraphs 8 and 9 above.

### D. Claim 39

12. With respect to the Appellants' remarks to claim 39 that, "neither AAPA nor DiBene, alone or in combination, disclose or suggest a heat sink having fins that overlap and extend opposite to opposite sides of a second heat emitting device", the Examiner respectfully disagrees. For clarity the Examiner has included Present Action Fig 2 below which details how the first heat sink fins extend opposite to opposite sides of a second heat emitting device.

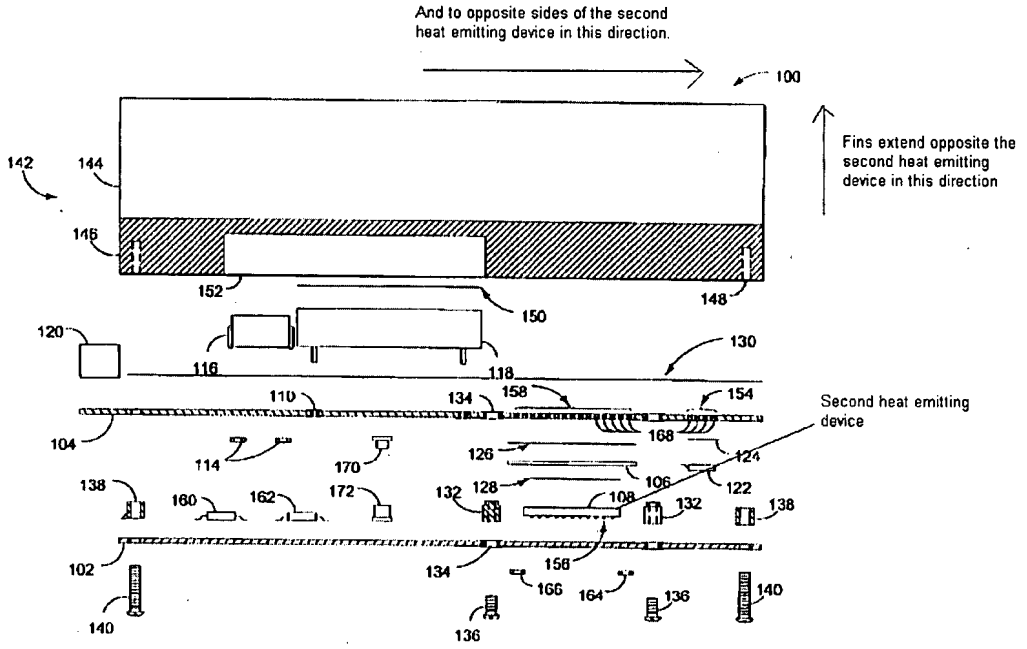


Fig 2

**E. Claim 40**

13. With respect to the Appellants' remarks to claim 40, the Examiner directs the Appellants to the response in paragraph 12 above.

**F. Claim 54**

14. With respect to the Appellants' remarks to claim 54 that, "Neither DiBene nor AAPA, alone or in combination, disclose a heat dissipating structure (heat sink) having fins that is configured to extend (1) at least partially around and (2) opposite to opposite sides of the fins of the second heat sink", the Examiner respectfully disagrees. As to the fins extending opposite to opposite sides, the Examiner directs the Appellant's to the response in paragraph 12 above. Regarding the fins being at least partially around the fins of the second heat sink, DiBene clearly discloses (In Fig 1) that the first heat sink (142) with fins (144) extends at least partially around the fins (158) of the second heat sink (Comprising 106, 126, 128, and 158, where because the first heat sink (142) has fins (144) which extend over the second heat sink fins (158) they therefore extend at least partially around). Further, with respect to the Appellants' remarks that, "the heat sink 142 does not extend around the "fins" of area 158", the Examiner notes that the claims are more broad than the remarks since claim 54 merely recites, "at least partially around".

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Zachary M. Pape

Zachary M. Pape

Conferees:

Ricky Mack

Jayprakash Gandhi